

Business In Nebraska

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The Undergraduate Research Associate Program

This month's Business in Nebraska features several articles written by undergraduate research associates at the Bureau of Business Research. The undergraduate research associate program is an innovation at the UN-L College of Business Administration designed to give students experience in applied research, statistics, and analysis. During the past semester, students assigned to the Bureau of Business Research explored several issues and concepts important to the Nebraska economy. Some of their research is summarized in the following articles.

A Leading Economic Index for Nebraska

David W. Taylor

From a National to a Nebraska Index

Although the national index of leading economic indicators is reported swiftly by the media, there has been no such record kept on a state level in Nebraska. Other states and some metropolitan areas issue similar indexes. A project to create composite indexes to measure economic activity within Nebraska was pursued by the Bureau of Business Research in 1985. The indexes were completed, but were not used on a continuous basis. Analysis shows that these indexes are successful in measuring the Nebraska economy on a level consistent with indexes used in measuring the national economy. This article is a continuation and current application of the original project.

The project consists of two parts. The first part is the composite index of coincident indicators, which is used to record turning points in the Nebraska economy. It marks the historical periods of expansion and decline. The second part, the composite index of leading indicators, is used to predict forthcoming changes in the coincident index and in the business cycle in Nebraska. The construction of the indexes was kept as simple as possible, but the indexes provide meaningful economic data.

Background

Talk of an approaching economic recession can be heard daily. While the Federal Reserve performs a balancing act between inflation and depressed economic growth, economists speculate when the next recession will occur. Individual sectors of the national economy can be used to determine whether predictions of a slowdown are warranted; for example, the government's index of leading economic indicators experienced

two consecutive monthly declines before the advance of 0.8 percent in April.

The index of leading economic indicators is a statistical tool used to anticipate economic activity. It is used to forecast changes in the business cycle. A marked decline in this index can point to a downturn in business activity. A typical recessionary period would be characterized by negative growth in real Gross

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A Primer on Capital Budgeting

Harold D. Peck, Jr.

Capital budgeting is a financial management tool to determine criteria for investing in long-term projects. Although corporations long have used capital budgeting techniques, substantial numbers of small businesses and farmers have yet to adopt them. Operating a business has become more capital intensive over the past two or three decades. As new technology has developed, capital goods have become more productive. The cost of purchasing and operating some of these capital goods also has increased.

The personal computer is a classic counterexample. Not only has there been rapid advance in productivity, but also a decrease in unit cost in personal computers. It is important to examine capital investment opportunities in a way that will produce a ranking of alternatives. In essence, capital budgeting is the process of deciding which long-term capital investments should be made.

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National Product and high levels of unemployment. The last recorded recession in the United States occurred between July 1981 and November 1982.

Components of the National Index

The composite index is compiled from various indicators that measure the health of the economy. There are three classifications of indicators that can be used for analysis: leading, coincident, and lagging. Movements of leading indicators precede movements of the business cycle. Such indicators reach their peaks and troughs in advance of the business cycle's peaks and troughs. Coincident indicators move with the business cycle and are used to confirm the dates of peaks and troughs of the business cycle. Finally, lagging indicators move behind the business cycle, reaching their peaks and troughs after the coincident indicators' peaks and troughs.

A given composite index combines several individual indicators in an attempt to provide a broader and more reliable measure of economic activity. The individual indicators chosen represent diverse sectors of the economy, yet they all closely monitor the business cycle. Technical methods are applied to select the indicators used in the composite indexes produced by the U.S. Department of Commerce—the following criteria are used in selecting indicators:

- 1) The indicator should measure correctly relevant economic processes;
- 2) The indicator should exhibit a consistent relationship with the business cycle over time;
- 3) The indicator should not be controlled by irregular or random movements;
- 4) The indicator should be reported promptly and on (at least) a monthly basis.

A combination of indicators following these criteria should provide an ample measure of ongoing economic activity. It should be taken into consideration, however, that there is no theoretical justification for using indicators to predict the business cycle.

Business Conditions Digest, published by the U.S. Department of Commerce, provides monthly data on 111 individual economic indicators. Eleven of these series are combined in the index of leading indicators. Four series compose the coincident index, and six series compose the lagging index.

Construction of the Coincident Index

There are difficulties in compiling indexes at the state level. One of the main drawbacks is that much of the relevant economic information used to construct the individual series is not published quickly enough at the state level to allow for timely inclusion in the indexes. Such data would need to be forecast, which would reduce the reliability of the resulting composite indexes. A similar problem is that the wide range of economic data available on the national level is not available on the state level. Furthermore, much of the state economic data is not available on an historical basis. This fact further may handicap analysis of Nebraska business cycle fluctuations. The time series used for analysis of the Nebraska economy is only available through January 1970.

The composite index of coincident indicators for Nebraska consists of three individual series. These indicators include

measures of the following data:

- 1) Nonfarm wage and salary employment;
- 2) Industrial electricity usage;
- 3) Real retail sales.

Figures for nonfarm wage and salary employment from the Bureau of Labor Statistics, U.S. Department of Labor provide a measure of employment in various sectors of the Nebraska economy. Data for industrial electricity usage are obtained from the Energy Information Administration and provide a measure of industrial production in the state. Figures for retail sales are from the advance report on sales tax from the Nebraska Department of Revenue. This series reflects statewide consumer buying power.

The coincident index is updated in several ways. First, the raw data for each individual time series are seasonally adjusted. Next, the series that are considered to be relatively volatile (for example, industrial electricity) are smoothed (adjusted by compiling a three month moving average). Next, the month-to-month changes are calculated. In this calculation, the symmetrical percent changes are computed, which allows for equal treatment of both positive and negative changes in the index components. The treatment is achieved using the average of the two months being compared as the base for the percent change, rather than just the second month. The resulting symmetric percent changes are standardized to prevent irregular movements from dominating the movements of the resulting composite index.

The results are standardized by dividing each individual symmetric percent change by the long-run average percent change in the whole series (the standardization factor) without regard to sign. The resulting standardized percent changes are used to construct each individual index. Depending on whether the series was smoothed, January or February 1970 is set at 100. The standardized percent changes are applied to each previous month's index measure.

After the three indexes for the standardized percent changes of the coincident indicators are calculated, the composite index of coincident indicators is created. Each individual index is weighted equally at one-third. The individual weighted indexes are summed to determine the composite standardized percent changes for the coincident indicators. Next, the average standardized percent change for this series is determined in the same manner as the standardization factor. The average standardized percent change is used later to adjust the composite index of leading indicators to reduce its variability from the composite index of coincident indicators.

The composite standardized percent changes for the coincident indicators are smoothed using the three month moving average. The composite index of coincident indicators is created by applying the smoothed percent changes to the previous month, with March 1970 equal to 100. Finally, the index is shifted to a base year of 1977. Figure 1 shows the Nebraska composite coincident index. The index shows fairly steady growth between 1985 and mid-1988 and large gains at the end of 1988. Those gains were a result of the strength in the nonfarm employment and retail sales indexes.

Construction of the Leading Index for Nebraska

The composite index of leading indicators for Nebraska consists of five individual series:

Figure 1
Nebraska Composite Coincident Index

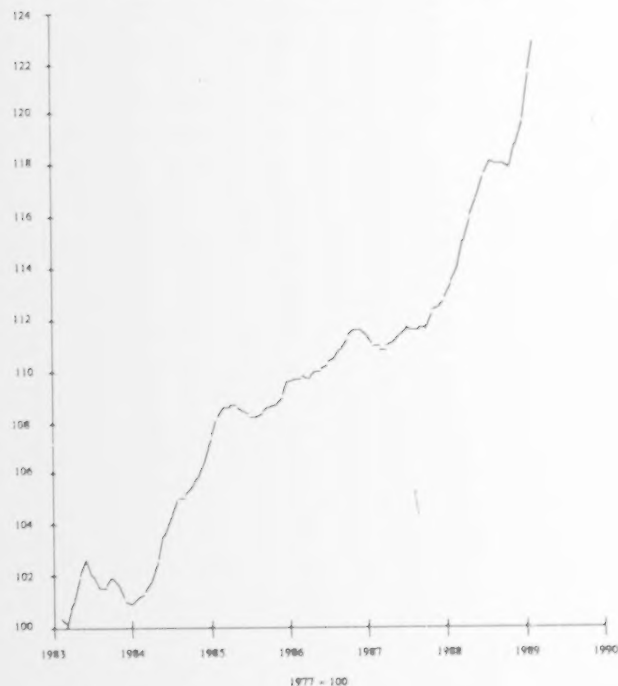
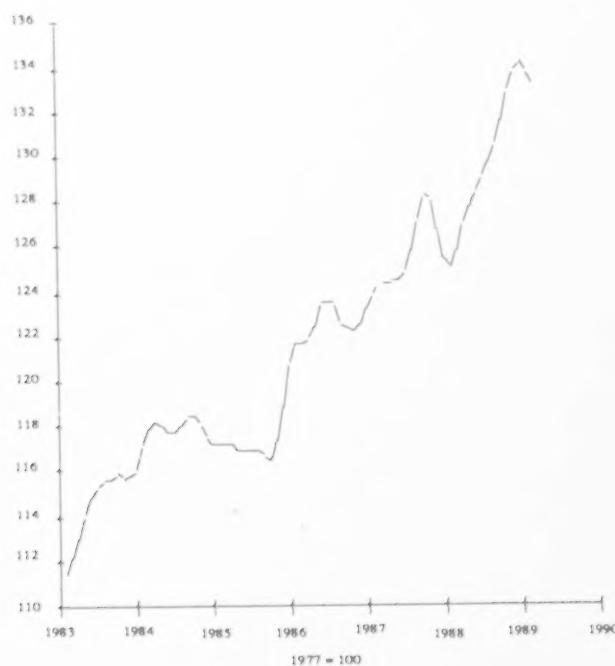


Figure 2
Nebraska Composite Leading Index



- 1) Initial claims for unemployment insurance (Nebraska Department of Labor);
- 2) Index of prices received for all ag products (National Agricultural Statistics Service and the Nebraska Department of Agriculture);
- 3) Index of prices of 500 common stocks (S&P 500, *Business Conditions Digest*);
- 4) Value of let construction contracts in Nebraska (*F.W. Dodge Construction Potentials Bulletin*);
- 5) Average weekly earnings in manufacturing (Nebraska Department of Labor).

The procedure used to construct the leading index is similar to the procedure for constructing the composite index. There are four differences in the process. First, the stock price index is not seasonally adjusted. Second, because there are five individual series to be combined, they are equally weighted by a factor of 0.2. Third, the composite standardized percent changes are adjusted (multiplied) by the ratio of the coincident average standardized percent change to the leading average standardized percent change. This step compensates for differences in variability between the two indexes. Finally, a trend of the leading index is made similar to that of the composite index by adding a trend adjustment factor to the smoothed standardized percent changes of the composite leading index. This trend adjustment factor, which is determined by trial and error, lies between 0 and 1 (currently .139) and is not changed often.

With compensation made for differences, the composite index of leading indicators is constructed by applying the smoothed percent change to the previous month with March 1970

equal to 100. Last, the index has been shifted to a base year of 1977. Figure 2 shows the recently updated Nebraska leading index. The index shows wider fluctuations than the coincident index. Its movements clearly precede those of the coincident index. The main inaccuracy of the index can be noted at the end of 1987. This was the time period surrounding the October stock market crash, a time when fears of a recession spread through the economy.

David W. Taylor is employed this summer with an insurance firm in Omaha.

Now Available

1988-1989 Nebraska Statistical Handbook

Nebraska's own almanac has just been released by the Department of Economic Development. These 313 pages contain information on climate, population, employment, income, agriculture, manufacturing, business, finance, insurance, transportation, communication, housing, education, health and welfare, government, recreation and tourism, and energy. To order your copy of the *1988-1989 Nebraska Statistical Handbook* (price \$6.00), contact:

Nebraska Department of Economic Development
P.O. Box 94666
Lincoln, NE 68509

Capital Budgeting (continued)

Making decisions whether to expand a business or to replace equipment can be difficult. The underlying reason for considering such projects is to improve the financial condition of the firm. There are several capital budgeting methods used in the business community today, but many of these methods do not use the time value of money through proper discounting of projected future cash flows. The net present value method of capital budgeting follows this principle and improves the operation's long-term financial strength by analyzing capital expenditure opportunities.

Businesses across the state are incurring higher interest costs on capital investments. Lenders charge interest for several reasons:

- 1) Risk—Some loans may default;
- 2) Inflation—Funds loaned today will have lower purchasing power when paid;
- 3) Foregone earnings—Funds loaned could have been used for other productive purposes.

The above factors are logical from a lender's point of view. The same factors are important when considering investments in a business. A common cliché is that a dollar today is worth more than a dollar tomorrow. That simple statement describes one of the most important principles in finance: the time value of money. These same factors are also important when valuing future cash flows of a project.

Inflation reduces the purchasing power of the dollar received from projects. Because the value of a dollar is based upon what it will buy, tomorrow's dollars are of less value than today's. Another factor in the time value of money is risk. For example, with an investment in a parcel of land, there is no guarantee it will be a self-funding investment. Dollars expected in the future are less certain than dollars now. Thus, today's dollars are valued higher. Finally, investing in a capital item takes capital from other investment opportunities. By not accepting the latter investment, there is an opportunity cost. The opportunity cost is the foregone earnings that could have been achieved by investing in other projects.

Capital Budgeting Defined

Capital budgeting concerns setting criteria for investing in long-term projects. A majority of a business' profit often is made from its long-term investment projects. Therefore, it is important to have a proper system of evaluating opportunities. Some common examples of items that can be analyzed with capital budgeting procedures are land, buildings, equipment, and numerous other long-term capital investments.

There are several benefits from using the capital budgeting model. It is not a perfect system, however, and should not be followed blindly. If used properly, it will provide meaningful insight into the profitability of potential projects. An important point in capital budgeting analysis is that one is using cash flows that are expected from the project. There is no way of knowing whether these cash flows will occur—that risk must be considered when deciding the purchase of a capital item.

One of the most important goals of any business is to improve the value of the firm. The firm and society benefit when

value increases. There are several capital budgeting techniques used throughout the business community; however, there is no technique that adheres as closely to the goals of improving the firm's value as net present value.

Cash Flows, not Income

Many businesses across the state have noticed an increased emphasis on cash flow statements as compared to income statements when talking to their bankers. Cash flows are the actual dollars that are received and spent, whereas net income is affected by noncash expense depreciation. Examining a project's cash flow is more relevant to the firm's profitability than is net income because the firm's value is based upon cash flow, not yearly income.

Caution should be used when assessing expected future cash flows. An example should clarify the relationship between income and cash flows. A machine costing \$50,000 and having a useful life of five years will be depreciated by the straightline method to zero. The machine will increase income \$40,000 per year and raise operating costs by \$26,000 per year. There is a 15 percent federal income tax and a 13 percent Social Security tax.

	Change in Income Statement	Change in Cash Flow
Income	\$40,000	\$40,000
Less: Operating expense	\$26,000	\$26,000
Depreciation	\$10,000	
Earnings before taxes	\$4,000	
Less: Tax (28 percent)	\$1,120	\$1,120
Earnings after taxes	\$2,880	
Increased cash flow		\$12,880

Thus, cash flow is equal to net earnings after taxes plus depreciation. The time value of money concept should be implemented on the estimated cash flows. For example, if a truck is expected to develop cash flows as follows:

	Cash flow				
	t=1	t=2	t=3	t=4	Total
Truck	\$20,000	\$25,000	\$25,000	\$26,000	\$96,000
Discount factor	(1.1) ¹	(1.1) ²	(1.1) ³	(1.1) ⁴	
Present value*	\$18,181	\$20,661	\$18,783	\$17,758	\$75,384

*to nearest dollar

It is possible to mistakenly value the truck's cash inflow as \$96,000. But the dollars received in year 1 are valued higher than dollars in year 2. To determine the actual present value, the discounted cash flow formula must be used. This formula does just the opposite of compounding, as follows:

$$\text{Present Value} = \text{Cash Flow} / (1+r)^t$$

This formula means that the present value of a single amount equals the cash flow in year t divided by one plus the interest rate to the power of t . The variable t represents the number of years from now the cash flow will be received. The discounted cash

flows for years 1 through 4 are stated in today's value. The present value of each cash flow can be summed on an equal basis. The true present value of the truck's cash inflow is \$75,383.56.

The following example shows how the discounting technique can be used to help make choices between possible investments. Assume that the discount rate is 12 percent.

Project	Initial Investment t=0	t=1	Cash Flow t=2	t=3
Farrowing house	(\$60,000)	\$16,000	\$29,000	\$50,000
Dairy barn	(\$60,000)	\$50,000	\$29,000	\$16,000
Discount factor		(1.12) ¹	(1.12) ²	(1.12) ³

Before a decision can be made on which project to accept, the net present value of both opportunities should be examined. The net present value (NPV) is equal to the present value of the future cash flows minus the cash flow in time 0 or initial cost. The NPVs of the farrowing house and dairy barn are \$12,993.35 and \$19,149.96, respectively.

Even though both investments have the same total cash flows, the dairy barn has a higher net present value due to the larger cash flows occurring earlier in the life of the project. Therefore, the dairy barn should be accepted over the farrowing house. It is important to keep in mind, however, that both projects would add value to the firm because of their positive NPVs.

Techniques to Avoid

Knowledge of the time value of money and the application of this principle are essential when performing capital budgeting analysis. But there are other methods that do not use this important principle. The first is the average return on average investment (ARAI). The ARAI method compares yearly after tax income with investment. After combining these two numbers in a ratio, a calculated percentage is compared with an established rate.

There are several problems with the ARAI method of capital budgeting. First, it does not use the time value of money. With ARAI, both the farrowing house and dairy barn from the previous example are considered equal; whereas when the time value of money is incorporated, the dairy barn's cash flows are valued more highly. Another problem is that the ARAI formula uses net income instead of cash flows. The final problem is that the ARAI does not necessarily lead to improvement of the firm's value. The problem develops because an established required rate can be set arbitrarily, which may or may not be the optimal rate.

Another commonly used capital budgeting method is the payback period rule. Payback ranks projects on the number of years that will elapse before the initial cost of the investment is recovered. Many business managers enjoy the ease of employing the payback rule. They know how long it takes to repay the initial investment and will accept only projects that meet their time constraint. But there are some serious problems that can develop with the payback method. First, the payback rule does not use the time value of money. Nor does it consider cash flows after the payback has been achieved. Thus, it rates short-lived projects too highly. Often projects develop slowly, but can be worth the wait.

Application of Capital Budgeting

In the examples used, the discount rate has been a given. Because the discount rate has a substantial impact on the net present value method of capital budgeting, it is important to select the discount rate properly. One common method is to apply the interest rate on the loan used to fund the project, adjusted for the tax shelter that interest expense provides:

$$\text{Discount rate} = \text{Loan rate} (1 - \text{tax rate}).$$

For example, if the bank's loan interest rate is 12.95 percent, the federal income tax rate is 15 percent, and the Social Security tax rate is 13 percent (a total tax of 28 percent), the discount rate would be 9.32 percent. Because interest expense is deductible as a business expense, only 72 percent of the loan's interest rate is incurred by the business. In some cases, no loan may be needed to finance the project. In such cases, the interest rate that would have occurred with a loan would be used for analysis.

The following example considers buying a combine to harvest corn to save custom combining expenses with a planning horizon of five years. The farm consists of 260 acres of irrigated corn that is expected to produce 130 bushels per acre per year for the next five years. Corn is expected to sell for \$2.50 per bushel for the next five years.

A used combine costs \$50,000 and will be depreciated straightline to zero and sold in five years for \$10,000. It is expected that 5.0 percent more corn will be harvested by the owner than by a custom combiner. Annual repairs, insurance, and fuel will be \$2,200.

For continued custom work, the fee would be \$25 per acre. The loan's interest rate is 12.95 percent and the tax rate is 28 percent. Thus, the proper discount rate is 9.32 percent.

	Inflows:	Pre-tax	Outflows:
Added harvest production	\$ 4,225		
Annual maintenance expense			\$2,200
Savings on custom work	\$6,500		
Depreciation each year	\$10,000		

Yearly cash flows for years 1 through 5 are as follows:

$$(10,725 - 2,200)(1 - .28) + 10,000(.28) = 6,138 + 2,800 = \$8,938$$

Therefore, on a time line, the cash flow stream (given an initial investment of \$50,000) is as follows:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
\$8,938	\$8,938	\$8,938	\$8,938	\$8,938	\$10,000

The net present value is calculated by discounting the cash flows to the present. The net present value is -\$9,116.30. Therefore, the combine should not be purchased, as the net present value is negative.

Harold D. Peck, Jr. is from Coleridge, Nebraska. Harold received assistance in his research from Dr. Gordon Karels of the UN-L Department of Finance.

This paper is a condensed version of a more extensive article. If you are interested in the full text, please send a written request to the Bureau of Business Research.

Per Capita Income in Nebraska Counties

Per capita personal income figures by county for 1987 recently have been released by the Bureau of Economic Analysis and are presented in the table below. The range of per capita income is broad, running from \$9,388 in Thurston County to \$29,473 in Wheeler County. Per capita income in the metropolitan counties varies from a high of \$15,832 for Douglas County (Omaha) to a low of \$11,792 for Dakota County (South Sioux City).

For the state as a whole, Nebraska per capita personal income was \$14,300, compared to a U.S. average of \$15,482. Thus, Nebraska's 1987 per capita personal income is 92.4 percent of the national figure, a level roughly consistent with our state cost of living in comparison to the U.S. Consequently, Nebraskans' purchasing power from their earnings is approximately on par with national averages.

John S. Austin

Per Capita Personal Income

	1987	1987 Rank		1987	1987 Rank
United States	\$15,482	—	Hitchcock	\$14,383	31
Plains	14,784	—	Holt	13,807	49
Nebraska	14,300	—	Hooker	11,314	90
Nebraska (Metro)	15,001	—	Howard	12,123	82
Nebraska (Nonmetro)	13,667	—	Jefferson	14,451	28
Lincoln, NE (MSA)	14,373	—	Johnson	12,873	76
Omaha, NE-IA (MSA)	15,033	—	Kearney	15,887	16
Sioux City, IA-NE (MSA)	13,926	—	Keith	14,224	37
Adams	14,206	40	Keya Paha	14,264	35
Antelope	13,061	69	Kimball	18,018	6
Arthur	16,812	9	Knox	11,103	92
Banner	18,581	5	Lancaster	14,373	33
Blaine	13,336	61	Lincoln	13,764	50
Boone	13,578	53	Logan	15,522	20
Box Butte	14,509	26	Loup	11,699	87
Boyd	11,852	84	Madison	13,016	72
Brown	14,172	42	McPherson	15,961	14
Buffalo	12,247	81	Merrick	12,962	73
Burt	14,846	24	Morrill	14,206	39
Butler	14,383	32	Nance	13,558	55
Cass	12,928	75	Nemaha	13,370	59
Cedar	11,268	91	Nuckolls	13,128	67
Chase	15,093	22	Otoe	13,225	65
Cherry	12,461	78	Pawnee	13,115	68
Cheyenne	15,841	17	Perkins	22,268	2
Clay	16,586	10	Phelps	16,516	11
Colfax	13,048	70	Pierce	13,866	47
Cuming	13,741	51	Platte	13,337	60
Custer	13,826	48	Polk	15,800	19
Dakota	11,792	86	Red Willow	13,245	64
Dawes	12,385	79	Richardson	13,726	52
Dawson	13,047	71	Rock	14,972	23
Deuel	15,903	15	Saline	14,036	45
Dixon	11,963	83	Sarpy	13,471	56
Dodge	13,405	58	Saunders	12,791	77
Douglas	15,832	18	Scotts Bluff	13,216	66
Dundy	18,979	4	Seward	12,931	74
Fillmore	17,739	7	Sheridan	13,942	46
Franklin	14,469	27	Sherman	12,299	80
Frontier	14,315	34	Sioux	16,178	13
Furnas	15,227	21	Stanton	13,272	63
Gage	13,565	54	Thayer	14,446	29
Garden	19,122	3	Thomas	11,799	85
Garfield	11,558	88	Thurston	9,388	93
Gosper	16,436	12	Valley	14,218	38
Grant	13,290	62	Washington	14,245	36
Greeley	14,205	41	Wayne	11,506	89
Hall	13,432	57	Webster	14,439	30
Hamilton	14,518	25	Wheeler	29,473	1
Harlan	14,073	44	York	14,131	43
Hayes	16,857	8			

Junk Bonds: Facts and Fantasies

Harold D. Peck, Jr.

Junk bonds have been one of the most talked about investments over the past several months. Recently, the spotlight has focused on the default rate of junk bonds. A study by Harvard's Paul Asquith finds that default rates are close to 34 percent for bonds issued in 1977 and retired in 1988. Asquith's research contrasts with previous works showing default rates of only 2 percent per year. These latter studies were sponsored by Wall Street investment firms. Asquith also recognizes that default rates increase as the maturity of a bond draws nearer. Further, Asquith states that as the junk bond market matures, a higher percentage of defaults may occur.

To shed further light on the controversy, this article examines the definition and possible future course of junk bonds.

Bonds commonly pay interest with the effective rate depending upon the purchase price and the stated or coupon interest rate. For example, zero coupon bonds pay no interest. Instead, they are sold at a deep discount when issued. Bonds can appreciate or depreciate in value. If interest rates increase, prices on existing bonds will decrease to keep their effective rate in line with current market rates. Bonds also can depreciate if their rating is lowered because of an increase in default risk.

Standard & Poor's and Moody's rate bonds based upon their likelihood of default. A widely accepted definition of junk bonds is a bond not rated in the top four grades of Standard & Poor's scale (BBB through AAA). Bonds not having these ratings are more risky because of a higher probability of default. Such bonds, however, also offer a higher yield.

A myth about junk bonds is that they are issued solely for leveraged buyouts (LBOs) by management groups in their efforts to take over a company. LBOs often use junk bonds, but junk bonds also are issued by companies that are not as financially stable as investment grade companies.

Over the past seven to eight years, junk bonds have been attractive for institutional investors and small investors through mutual fund arrangements. Mutual funds have appealed to small investors because they offer professional management and diversification. Junk bonds have become a more popular investment due to the economy's strength over the past seven years. Many economists predict a recession within the next 12 months. If a recession were to occur, it could have a devastating impact on the junk bond market. As the economy reaches its peak and begins to slide, some highly indebted corporations will find it difficult, if not impossible, to make their interest payments.

Some statistics show that junk bonds offer extra return over and above the associated risk. There are several arguments against such conclusions. In efficient capital markets, such as the United States, competition is keen. Investors receive returns equal to the dollar amount paid. If there were extra returns above the normal risk premium, investors would be willing to buy these bonds at higher prices. Thus, the extra return would disappear within minutes.

There are some factors to be considered before investing in junk bonds:

1. Be willing to accept volatile bond prices.
2. Consider the state of the economy. If the economy continues to grow, junk bonds may prosper.
3. Look at the possibility of a high yielding bond fund instead of a single junk bond for diversification.

Women in the Labor Force

Rebecca S. Cox

The increased participation of women in the U.S. job market has changed the composition of today's workforce. Although the ratio of women to men age 55 and over has increased from two of ten workers in 1950 to four of ten workers in 1988, the participation rate of older women in the job market has remained nearly unchanged.

The participation rate is defined as the percentage of a particular category who are in the labor force. The labor force includes those who are employed and those who are actively seeking employment.

In 1967, the participation rate for women 65 and over was 9.6 percent. The rate decreased to 7.4 percent in 1987. The increased ratio of women to men can be explained by the decrease in the participation rate for men. For men 65 and over, the rate decreased from 27.2 percent in 1967 to 16.3 percent in 1987. For women 55 to 64 years, the participation rates were unchanged from 1967 to 1987. During the same period, the rate for men in the same age group dropped from 84.4 percent to 67.6 percent. The decrease in participation by men can be attributed to increased early retirement.

The most significant increase in the participation rate for women appears in the 25 to 54 age category. In 1967, the rate for women in this category was 47.3 percent; by 1987, the rate increased to 71.9 percent. The reason for the dramatic increase may be explained by differences in attitudes and by the education levels of women in the various age groups.

In 1987, two-thirds of working women over 55 were employed in a traditional female jobs: sales, administrative support (including clerical), and services. One-half of women ages 25 to 34 were employed in these traditional jobs. Although younger female workers are shifting toward formerly male-dominated jobs, there also has been an increase in the number of women involved in traditionally female-dominated occupations such as nursing and clerical jobs.

Several factors affect the proportion of older women in occupations. Factors include past opportunities, earnings, retirement income, health status, and marital status. Marital status has a substantial impact on the participation of older women. Older women that are married with a husband present are less likely to work than their divorced or never married counterparts. In 1987, 69.9 percent of divorced women age 55 to 59 worked, while 44.9 percent of married women age 55 to 59 worked outside the home.

Rebecca Cox is an undergraduate research associate who has contributed previously to Business in Nebraska.

Review and Outlook

The National Economy

The long expansion of the 1980s continues, as shown by data released from the Bureau of Economic Analysis (BEA). A revision of the first quarter 1989 GNP estimate reduced the expansion of GNP from the preliminary 5.5 percent to 4.3 percent. Many economists view the revised report as positive. Prior to the announcement, many believed that the economy was expanding too rapidly. Slow growth rates could allow a soft landing for the U.S. economy.

When the impact of last year's drought is removed from the first quarter numbers, the expansion was a modest 1.8 percent. Evidence that the economy is slowing is becoming somewhat more clear. The second quarter shows continued expansion, despite the mixed signals given by the economy. GNP growth in 1989 as a whole may be better than the current consensus forecast of 2.8 percent.

Industrial production in April grew 0.4 percent. Retail sales in that month grew the same percentage as did personal income. Some analysts were disappointed that retail sales did not increase faster, especially in the auto sector. Once again, major auto producers had to offer incentive programs to move stocks of automobiles. Incentives resulted in only a small increase in sales. Auto sales in 1989 are forecast to be no better than in 1988. Part of the reason for that forecast is that the stock of autos held by the public has become newer due to several years of high sales volume. Sales of light trucks and autos were 15.5 million units in 1988, compared with 10.2 million units in 1982.

April inflation reports were reassuring. The Producer Price Index expanded 0.4 percent, while the Consumer Price Index expanded 0.7 percent. The latter increase would be reduced to 0.2 percent if food and energy prices were removed. Inflation has not permeated outside the food or energy areas at this time.

A major factor behind the good news on inflation is that the Federal Reserve has maintained a fairly stable monetary policy the last few months. The federal funds rate has remained 9.5 to 10.0 percent since the beginning of the year.

Aiding the economy in 1988 was an expansion in capital goods investment in this country. Most of the capital goods

expansion was in equipment rather than producers' structures. The expansion in capital goods in 1988 has been characterized as one of improving at the margin rather than massive new projects.

The recent report on inflation was especially surprising in light of changes in energy prices. Retail gasoline prices appeared to have reached a plateau toward the end of May. Memorial Day price increases once again advanced retail prices of gasoline. Wholesale prices for gasoline and for crude products decreased from the peaks reached in April. West Texas intermediate crude peaked at the end of April at \$21.40 per barrel. That price dropped to \$19 on wholesale markets by the end of May. Furthermore, wholesale gasoline prices have decreased. The wholesale price for NY unleaded regular peaked at \$.7575 per gallon at the end of April. It is currently some 6 cents lower. OPEC production has been approximately 3.5 million barrels a day above the quota of 18.5 million barrels. Worldwide demand has been high enough so that the OPEC producers have not been harmed by their excessive production. Retail gasoline prices may not drop until autumn.

If a drought occurs again in the Midwest, food prices will increase. Recent reports indicate that the nation's cattle herd is the smallest since 1961. Ranchers have sent a large number of cattle to feedlots, including some breeder stock. Thus, meat prices could decrease in the short run, but in the longer run will increase as a shortage of fed cattle is felt. The huge excesses in grain markets for the last several years have been reduced substantially by increased exports and limited supplies last year. A second drought year may lead to much lower inventory levels and higher agricultural product prices.

In 1988, nearly one-fifth of GNP growth was due to net exports being less negative than they were in 1987. Substantial improvement in GNP came from a capital goods boom. The low value of the dollar throughout last year helped to stimulate grain exports. The recent climb in the dollar is foreboding for export markets.

A typical lag in the response of product flows to changes in the value of the dollar would be three to six months. This implies that 1989 probably will not suffer a deterioration in net exports. A worsening trade balance could occur, however, if the upward spiral of the dollar is not reversed.

Rising imports would hurt the net export situation. A substantial part of our imports are automobiles, especially from

Table I
National Indicators

	Annual		Quarterly (SAAR)			
	1987	1988	1988:II	1988:III	1988:IV	1989:I
Real GNP (percent change)	3.4	3.9	3.0	2.5	2.4	4.3
Real Consumption (percent change)	2.7	2.8	3.0	3.9	3.5	1.1
Housing Starts (\$ millions)	1.6	1.5	1.5	1.5	1.5	1.5
Auto Sales (\$ millions)	10.3	10.6	10.6	10.6	10.5	9.7
Interest Rate (90 day T-bill)	5.8	6.7	6.2	7.0	7.7	8.5
Unemployment Rate (percentage)	6.2	5.5	5.5	5.5	5.3	5.2
Industrial Production Index (1977=100)	129.8	137.2	136.0	138.4	139.8	140.7
Money Supply, M2 (percent change)	6.5	5.1	7.7	3.7	3.0	2.0

Note: SAAR—Seasonally Adjusted at Annual Rates

Japan. The Japanese recently have declared new voluntary quotas. But with production of Japanese cars in this country, coupled with the prospects for lower overall sales, the Japanese can maintain or increase their share of the American market without expanding exports to the U.S.

Another major component of imports is capital goods and industrial supplies. Whether these will expand are related to two factors: the relative price of these items and the level of investment in capital goods in our country. Should the economy slow in 1990, it is reasonable to expect that capital goods investment likely will contract in 1990.

Net exports commonly turn positive in recessions. Exports expand rapidly toward the end of the business cycle peak, while imports tend to fall somewhat. Reasons for all these movements would call for considerable analysis beyond the scope of this article. The trade numbers for March were positive and are reassuring that net exports are not a major problem this year.

The unemployment rate rose slightly in April to 5.3 percent, but fell to 5.2 percent in May. The labor market appear healthy, although unemployment in April and May was above the March level.

Mortgage rates fell in April and early May, a possible indication that the expected drop in housing starts may not be as severe as projected earlier. New house sales increased 10.9 percent in April, but remain below year ago levels on a year-to-year basis.

Consumer spending increased 1.1 percent in April, while personal income rose 0.4 percent. The savings rate dropped.

Machine tool orders were down through April, but order backlogs were 61 percent ahead of year ago levels. Such backlogs would allow continued high production levels. Should a major recession begin, however, orders will be cancelled and the backlog will disappear quickly.

First quarter GNP revisions show that overall inventory levels were less than estimated previously. Analysts describe inventories as lean and mean. That is good news for the economy as a whole, as excessive inventories followed by production cutbacks often are associated with the start of a major downturn.

Nebraska Economy

The outlook for the Nebraska economy is related closely to the outlook for net farm income. The drought that is affecting our state implies that net farm income in 1989 may be reduced somewhat. Professor James R. Schmidt estimates that net farm income will fall about 5.0 percent in 1989 from 1988. Although net farm income is a small part of the total income in our state, it is a big part of the change in income in Nebraska. Nonfarm income tends to grow fairly steadily.

The concept of net farm income may understate the effect of agriculture on our state. Net farm income is gross receipts minus total costs. The issue is what these costs represent. A typical farmer will have expenditures to the local elevator, to feed suppliers, to the agricultural, chemical, and fertilizer industries, to implement dealers, to car and truck dealers, and so forth. A better concept to assess the impact of agriculture upon the state may be gross receipts.

In the nonfarm sectors, continued growth in jobs and employment is foreseen. Nebraska's April unemployment rate was 2.8 percent, versus the national unemployment rate of 5.3 percent. Lincoln had an unemployment rate of only 2.3 percent, considered by some to be comprised mostly of only job changers. The Omaha rate of unemployment was 3.2 percent, while non-metropolitan Nebraska's was 2.9 percent. We expect that non-farm Nebraska income will follow national trends showing slower growth in 1989 and 1990 than in 1988. On the whole, the

Table II
Employment in Nebraska

	Revised March 1989	Preliminary April 1989	April % Change vs. Year Ago
Place of Work			
Nonfarm	701,870	710,422	3.9
Manufacturing	97,385	97,508	5.3
Durables	47,497	47,564	3.4
Nondurables	49,888	49,944	7.1
Mining	1,395	1,657	1.1
Construction	23,414	25,776	8.4
TCU*	46,756	47,304	7.6
Trade	180,577	183,057	3.8
Wholesale	51,513	52,508	5.2
Retail	129,064	130,549	3.3
FIRE**	48,579	48,745	2.2
Services	163,135	164,933	4.6
Government	140,629	141,442	1.0
Place of Residence			
Civilian Labor Force	811,862	816,855	1.1
Unemployment Rate	3.5%	2.8%	

*Transportation, Communication, and Utilities

**Finance, Insurance, and Real Estate

Source: Nebraska Department of Labor

Table III
Price Indices

	April 1989	% Change vs. Year Ago	YTD % Change vs. Year Ago
Consumer Price Index - U* (1982-84 = 100)			
All Items	123.1	5.1	4.9
Commodities	116.7	5.4	4.9
Services	130.2	4.9	4.9
Producer Price Index (1982 = 100)			
Finished Goods	113	5.7	5.3
Intermediate Materials	112.3	6.4	6.4
Crude Materials	104.1	8.8	8.3
Ag Prices Received (1977 = 100)			
Nebraska	158	11.3	15.1
Crops	138	36.6	43.4
Livestock	171	1.8	4.5
United States	146	12.3	13.6
Crops	138	24.3	24.0
Livestock	154	4.1	6.6

U* = All urban consumers

Source: U.S. Bureau of Labor Statistics

Nebraska economy appears to be fairly robust. Growth in 1988 sales tax receipts may have been related to the sharp increases in net farm income over the past few years; therefore, sales tax growth is likely to slow in 1989 and 1990.

John S. Austin

Voter Turnout Down Again-- A Look at 1988 Voter Participation

David W. Taylor

According to the Census Bureau, 57.4 percent of the U.S. voting age population exercised their right to vote in last year's presidential election. That turnout represents a steady decrease since 1964 and the lowest recorded percentage since data first were collected. The 1988 participation rate decreased from 59.9 percent in 1984 and 69.3 percent in 1964.

Voter turnout fell for all age groups except those 65 years and older. Those 65 years and above had a 1988 participation rate of 68.8 percent. That figure is in line with previously reported participation rates for this age group. The youngest age group of voters had the lowest participation rate, 36.2 percent in 1988. Despite efforts to increase participation among younger voters, their participation rates have dropped since 1964.

As the level of education increases, the rate of voter turnout increases. Statistics show 54.7 percent of those attending four years of high school voted, while 77.6 percent of those attending four years of college voted.

Employment status also has a marked effect on voter participation—57.5 percent of those employed in the civilian labor force voted, compared to 38.6 percent of the unemployed.

The percent of voting age Nebraskans who voted (63.5 percent) compares favorably to the percentage recorded for the nation (57.4 percent). Nebraska's percentage was close to that of the Plains states (66.7 percent), especially that of Iowa (63.4 percent).

Table IV
City Business Indicators
February 1989 Percent Change from Year Ago

The State and Its Trading Centers	Employment (1)	Building Activity (2)
NEBRASKA	1.9	34.8
Alliance	2.2	176.4
Beatrice	2.2	55.4
Bellevue	10.9	24.6
Blair	10.9	1,429.8
Broken Bow	0.9	-50.2
Chadron	0.8	-49.2
Columbus	4.2	263.1
Fairbury	3.2	316.8
Falls City	1.4	626.8
Fremont	1.8	42.3
Grand Island	3.2	39.0
Hastings	1.0	-5.1
Holdrege	2.4	-69.7
Kearney	0.8	26.0
Lexington	2.7	55.4
Lincoln	2.2	18.0
McCook	3.2	7.4
Nebraska City	1.7	108.9
Norfolk	3.1	-11.9
North Platte	1.5	48.8
Ogallala	1.8	2.2
Omaha	1.9	33.3
Scottsbluff/Gering	2.0	-0.5
Seward	1.0	27.5
Sidney	0.2	30.5
South Sioux City	2.4	492.9
York	1.2	-42.4

(1) As a proxy for city employment, total employment (labor force basis) for the county in which a city is located is used.

(2) Building activity is the value of building permits issued as a spread over an appropriate time period of construction. The U.S. Department of Commerce Composite Cost Index is used to adjust construction activity for price changes.

Sources: Nebraska Department of Labor and reports from private and public agencies

Figure I
City Business Index
February 1989 Percent Change from Year Ago



Table V
Net Taxable Retail Sales of Nebraska Regions and Cities

Region Number and City (1)	City Sales (2)		Region Sales (2)		YTD % Change vs. Year Ago
	Feb. 1989 (000s)	% Change vs. Year Ago	Feb. 1989 (000s)	% Change vs. Year Ago	
NEBRASKA	\$708,644	4.6	\$805,568	4.1	6.5
1 Omaha	253,391	8.8	306,550	6.9	7.5
Bellevue	9,916	5.9	*	*	*
Blair	3,785	5.1	*	*	*
2 Lincoln	93,588	-0.6	107,055	0.0	3.8
3 South Sioux City	3,712	11.3	5,195	6.5	-12.4
4 Nebraska City	3,162	6.1	14,345	0.4	6.0
6 Fremont	12,638	0.4	22,997	-3.4	1.6
West Point	2,197	9.0	*	*	*
7 Falls City	1,584	-7.3	7,266	-1.5	-0.7
8 Seward	3,326	1.7	11,689	-2.6	2.6
York	5,273	-0.4	12,501	6.8	12.0
10 Columbus	12,196	3.2	22,601	5.6	7.9
11 Norfolk	15,347	8.5	28,306	7.1	9.2
Wayne	2,380	6.1	*	*	*
12 Grand Island	27,363	4.7	38,604	5.1	10.1
13 Hastings	12,917	-1.3	21,058	1.6	13.2
14 Beatrice	6,368	1.1	14,529	-1.2	1.8
Fairbury	2,177	0.2	*	*	*
15 Kearney	15,770	8.3	22,094	8.3	14.7
16 Lexington	5,289	9.6	13,593	8.9	11.6
17 Holdrege	3,485	1.7	6,490	4.6	7.6
18 North Platte	11,783	0.2	14,951	-0.2	4.2
19 Ogallala	4,617	1.7	10,172	13.6	19.0
20 McCook	6,198	8.2	8,911	4.1	11.3
21 Sidney	3,156	4.1	6,435	-1.9	3.8
Kimball	1,377	-8.9	*	*	*
22 Scottsbluff/Gering	14,200	23.7	20,246	1.0	9.7
23 Alliance	4,539	4.4	11,388	4.9	5.5
Chadron	2,221	-23.8	*	*	*
24 O'Neill	3,121	2.3	10,676	8.4	16.9
Valentine	1,903	-3.3	*	*	*
25 Hartington	1,117	-14.1	6,685	-4.5	4.9
26 Broken Bow	2,760	5.5	9,397	3.1	10.5

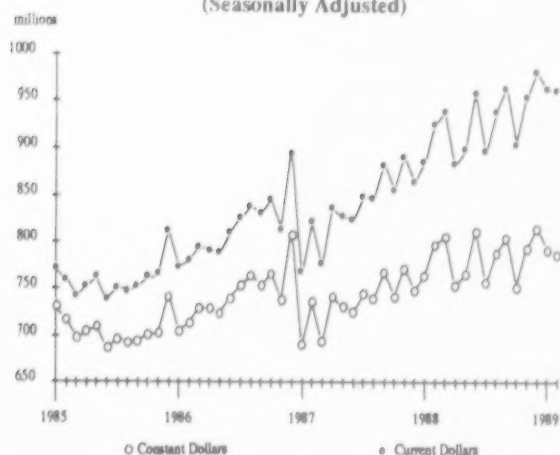
(1) See region map

(2) Sales on which sales taxes are collected by retailers located in the state. Region totals include motor vehicle sales

* Within an already designated region

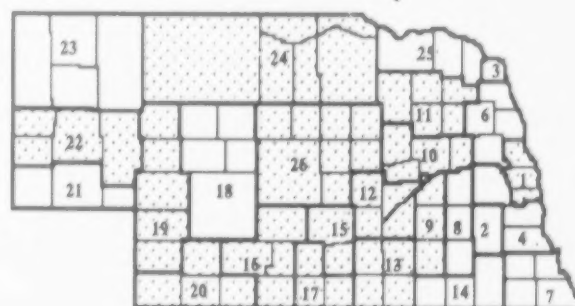
Compiled from data provided by the Nebraska Department of Revenue

Figure II
Nebraska Net Taxable Retail Sales
(Seasonally Adjusted)



(1) The Consumer Price Index (1982-84 = 100) is used to deflate current dollars into constant dollars

Figure III
Region Sales Pattern
YTD as Percent Change from Year Ago



Shaded areas are those with sales gains above the state average. See Table V for corresponding regions and cities

Scoreboard

Percent change from same month one year ago

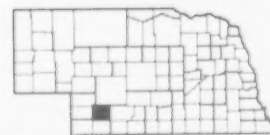
	State	Metro+	Nonmetro
Motor Vehicle Sales (Feb.)			
Constant \$	-4.5%	-6.5%	-2.9%
Nonmotor Vehicle Sales (Feb.)			
Constant \$	-0.2%	1.0%	-1.4%
Building Activity (Feb.)			
Constant \$	35.1%	22.7%	59.8%
Employment (Apr.)			
	1.8%	1.9%	1.6%
Unemployment Rate* (Apr.)			
	2.8%	2.8%	2.9%

+Omaha and Lincoln

*Unemployment is this month's rate, not a percent change from year ago

County of the Month

Hayes



Size of county: 711 square miles, ranks 40th in the state

Population: 1,300 (estimated) in 1987, a change of -2.9 percent from 1980

Median age: 33.0 years in Hayes County, 29.7 years in Nebraska in 1980

Per capita personal income: \$16,857 in 1987, ranks 8th in the state
Net taxable retail sales (\$000): \$1,991 in 1988, a change of -0.8 percent from 1987; \$402 during January-February 1989, a change of +32.7 percent from the same period one year ago

Number of business and service establishments: 26 in 1986; 80.8 percent had less than five employees

Unemployment rate: 1.5 percent in Hayes County, 4.9 percent in Nebraska for 1987

Nonfarm employment (1988):

	State	Hayes County
Wage & salary workers	659,223	151
	(percent of total)	
Manufacturing	13.3%	7.9%
Construction and Mining	3.9	*
TCU	6.5	*
Retail Trade	18.7	9.3
Wholesale Trade	7.1	5.3
FIRE	7.3	*
Services	22.7	*
Government	20.5	66.2
Total	100.0%	100.0%

*Data not available because of disclosure suppression

Agriculture:

Number of farms: 317 in 1987, 328 in 1982

Average farm size: 1,273 acres in 1987

Market value of farm products sold: \$53.0 million in 1987
(\$167,273 average per farm)Sources: U.S. Bureau of the Census, U.S. Bureau of Economic Analysis,
Nebraska Department of Labor, Nebraska Department of Revenue

Merlin W. Erickson

Business
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